



Editorial on Innovation in Immunology

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Abstract:

Human health is undeniably a topic of intense research focus today. It's an issue that affects each one of us personally—including our friends, family, and colleagues—while also having a global impact. We are constantly bombarded by environmental insults that can affect our health, from the relatively innocuous irritants that cause allergies to potentially deadly viruses, parasites, and bacteria. Our most effective defense against these microscopic invaders is our immune system. One institution that has focused on unraveling some of the remaining questions in immunology is the RIKEN Research Center for Allergy and Immunology (RCAI). In this booklet, we invite you to read a sampling of RCAI publications that have shed light on topics such as

immune cell development and differentiation, the protective role of probiotics, immune system homeostasis, and the role of immune cells in cancer and autoimmune diseases.

One of the features distinguishing SARS-CoV-2 from its more pathogenic counterpart SARS-CoV is the presence of premature stop codons in its ORF3b gene. Here, we show that SARS-CoV-2 ORF3b is a potent interferon antagonist, suppressing the induction of type I interferon more efficiently than its SARS-CoV ortholog. Phylogenetic analyses and functional assays revealed that SARS-



CoV-2-related viruses from bats and pangolins also encode truncated ORF3b gene products with strong anti-interferon activity. Furthermore, analyses of more than 15,000 SARS-CoV-2 sequences identified a natural variant, in which a longer ORF3b reading frame was reconstituted.

Biography:

Hong Liu is currently associated with Takeda Pharmaceuticals, USA

Recent Publications:

1. Liu H, Dasgupta S, Fu Y, Bailey B, Roy C, Lightcap E, Faustin B (2019) Subsets of mononuclear phagocytes are enriched in the inflamed colons of patients with IBD. *BMC Immunol.* 20:42.

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